RF MEASUREMENT REPORT

FCC ID:	2AYEX-SKL5010
Applicant:	Shenzhen EPS Technology Co. LTD.
Product:	USB2.0 contactless connectivity
Model No.:	SKL5010A, SKL5010B
Trademark:	EPS
FCC Classification:	Part 15 Low Power Communication Device Transmitter (DXX)
FCC Rule Part(s):	FCC PART 15.255
Received Date:	2023-09-19
Test Date:	2023-09-28 ~ 2023-12-08

Reviewed By: Jame Yuan

Approved By: Robin Wu

Revision History

Report No.	Version	Description	Issue Date	Note
2309RSU048-U1	V01	Initial Report	2023-12-01	Invalid
2309RSU048-U1	V02	Added Test Data	2023-12-12	Valid

CONTENTS

1. General Information

1.1. Applicant

Shenzhen EPS Technology Co. LTD.

901, Tower 1, Louhu Investment Holding Building, Qingshuihe 1 Road, Luohu, Shenzhen

1.2. Manufacturer

Shenzhen EPS Technology Co. LTD.

901, Tower 1, Louhu Investment Holding Building, Qingshuihe 1 Road, Luohu, Shenzhen

1.3. Testing Facility

<table>
<tr><td>☒</td><td colspan="5">Test Site – MRT Suzhou Laboratory</td></tr>
<tr><td></td><td colspan="5">Laboratory Location (Suzhou - Wuzhong)
D8 Building, No.2 Tian’edang Rd., Wuzhong Economic Development Zone, Suzhou, China
Laboratory Location (Suzhou - SIP)
4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China</td></tr>
<tr><td></td><td colspan="5">Laboratory Accreditations</td></tr>
<tr><td></td><td colspan="2">A2LA: 3628.01</td><td colspan="3">CNAS: L10551</td></tr>
<tr><td></td><td colspan="2">FCC: CN1166</td><td colspan="3">ISED: CN0001</td></tr>
<tr><td></td><td rowspan="2">VCCI:</td><td>☐R-20025</td><td>☐G-20034</td><td>☐C-20020</td><td>☐T-20020</td></tr>
<tr><td></td><td>☐R-20141</td><td>☐G-20134</td><td>☐C-20103</td><td>☐T-20104</td></tr>
<tr><td>☐</td><td colspan="5">Test Site – MRT Shenzhen Laboratory</td></tr>
<tr><td></td><td colspan="5">Laboratory Location (Shenzhen)
1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China</td></tr>
<tr><td></td><td colspan="5">Laboratory Accreditations</td></tr>
<tr><td></td><td colspan="2">A2LA: 3628.02</td><td colspan="3">CNAS: L10551</td></tr>
<tr><td></td><td colspan="2">FCC: CN1284</td><td colspan="3">ISED: CN0105</td></tr>
<tr><td>☐</td><td colspan="5">Test Site – MRT Taiwan Laboratory</td></tr>
<tr><td></td><td colspan="5">Laboratory Location (Taiwan)
No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)</td></tr>
<tr><td></td><td colspan="5">Laboratory Accreditations</td></tr>
<tr><td></td><td colspan="5">TAF: 3261</td></tr>
<tr><td></td><td colspan="2">FCC: 291082, TW3261</td><td colspan="3">ISED: TW3261</td></tr>
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1.4. Product information

Product Name	USB2.0 contactless connectivity
Model No.	SKL5010A, SKL5010B
Product Brand Name	EPS
EUT Identification No.	20230920Sample#01 & 20230920Sample#03(Low Rate) 20230920Sample#07 & 20230920Sample#08(High Rate)
Software Version	V1.3
Hardware Version	V1.0
Temperature	-20°C ~ +85°C

Note:

1. The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.
2. SKL5010A: USB Type-C female connector with MCU, host mode;
   SKL5010B: USB Type-C male connector without MCU, device mode
   The above differences do not affect RF, so we selected SKL5010A to perform complete testing and SKL5010B for power and spurious verification testing.

1.5. Radio Specification

Frequency Range	60.5GHz
Type of Modulation	2ASK
Antenna Type	Patch single antenna
Antenna Gain	4 dBi

2. Test Configuration

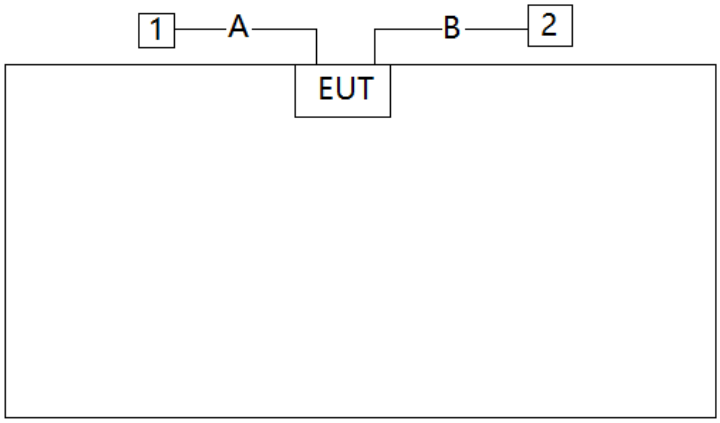
2.1. Test Mode

Mode 1: Power the SKL5010A by USB + Transmit by signal generator (High Rate = 480Mbps)
Mode 2: Power the SKL5010B by USB + Transmit by signal generator (High Rate = 480Mbps)
Mode 3: Power the SKL5010A by USB + Transmit by signal generator (Low Rate = 6Mbps)
Mode 4: Power the SKL5010B by USB + Transmit by signal generator (Low Rate = 6Mbps)

2.2. Test System Connection Diagram

The device was tested per the guidance ANSI C63.10: 2013 was used to reference the appropriate EUT setup for radiated emissions testing and AC line conducted testing.

Connection Diagram (Mode 1~ 4)



Cable Type		Cable Description	Length
A	USB Cable	Shielded	2.0m
B	USB Cable	Shielded	2.0m
Product		**Manufacturer**	**Model No.**
1	Notebook	Lenovo	E495
2	Signal Generator	Keysight	81160A

2.3. Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15.255
- ANSI C63.10-2013

2.4. Test Environment Condition

Ambient Temperature	15 ~ 35°C
Relative Humidity	20 ~ 75%RH

3. Antenna Requirements

Excerpt from §15.203 of the FCC Rules/Regulations:

"An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section."

- The antenna of this device is **permanently attached.**
- There are no provisions for connection to an external antenna.

Conclusion:

The unit complies with the requirement of §15.203.

4. Group installation

Excerpt from §15.255(a)&(h) of the FCC Rules/Regulations:

Operation under the provisions of this section is not permitted for equipment used on satellites.

Any transmitter that has received the necessary FCC equipment authorization under the rules of this chapter may be mounted in a group installation for simultaneous operation with one or more other transmitter(s) that have received the necessary FCC equipment authorization, without any additional equipment authorization. However, no transmitter operating under the provisions of this section may be equipped with external phase-locking inputs that permit beam-forming arrays to be realized.

- The device is not used on satellites.
- The device is not equipped with external phase-locking inputs that permit beam-forming arrays to be realized.

Conclusion:

The unit complies with the requirement of 15.255(a)&(h).

5. Measuring Instrument

Instrument	Manufacturer	Model No.	Asset No.	Cali. Interval	Cali. Due Date	Test Site
EMI Test Receiver	R&S	ESR3	MRTSUE06185	1 year	2023-12-28	SIP-AC3
Signal Analyzer	Keysight	N9010B	MRTSUE06559	1 year	2024-05-23	SIP-AC3
Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06599	1 year	2024-09-24	SIP-AC3
Preamplifier	EMCI	EMC184045SE	MRTSUE06602	1 year	2024-10-09	SIP-AC3
Horn Antenna	R&S	HF907	MRTSUE06611	1 year	2024-07-14	SIP-AC3
Thermohygrometer	testo	608-H1	MRTSUE06619	1 year	2023-11-01	SIP-AC3
Preamplifier	EMCI	EMC012645SE	MRTSUE06642	1 year	2024-01-12	SIP-AC3
TRILOG Antenna	Schwarzbeck	VULB 9168	MRTSUE06646	1 year	2024-08-04	SIP-AC3
Anechoic Chamber	RIKEN	SIP-AC3	MRTSUE06782	1 year	2023-12-22	SIP-AC3
Thermohygrometer	testo	608-H1	MRTSUE11255	1 year	2024-08-13	SIP-AC3
Signal Analyzer	Keysight	N9030B	MRTSUE06395	1 year	2024-06-29	SIP-TR1/SIP-TR2/ SIP-AC3
Temperature Chamber	BAOYT	BYG-408CS	MRTSUE06847	1 year	2024-02-12	SIP-TR1
Thermohygrometer	testo	608-H1	MRTSUE11022	1 year	2023-11-01	SIP-TR1
Thermohygrometer	testo	608-H1	MRTSUE11109	1 year	2024-03-03	SIP-TR2
Waveguide Harmonic Mixer	Keysight	M1970V	MRTSUE06271	N/A	N/A	SIP-TR1/SIP-TR2/ SIP-AC3
Waveguide Harmonic Mixer	Keysight	M1970W	MRTSUE06272	N/A	N/A	SIP-AC3
mmWave Antenna	MI-WWAVE	261U-25/383	MRTSUE06273	N/A	N/A	SIP-AC3
mmWave Antenna	MI-WWAVE	261G/387	MRTSUE06274	N/A	N/A	SIP-AC3
mmWave Antenna	MI-WWAVE	261F/387	MRTSUE06275	N/A	N/A	SIP-AC3
mmWave Antenna	A-INFO	LB-15-25-A	MRTSUE06409	N/A	N/A	SIP-TR1/SIP-TR2/ SIP-AC3
mmWave Antenna	A-INFO	LB-10-25-A	MRTSUE06410	N/A	N/A	SIP-AC3
mmWave Extension Module	Keysight	E8257DV15	MRTSUE06456	N/A	N/A	SIP-AC3
mmWave Extension Module	Keysight	E8257DV10	MRTSUE06458	N/A	N/A	SIP-AC3
Two-Line V-Network	R&S	ENV216	MRTSUE06003	1 year	2024-05-23	SIP-SR2
EMI Test Receiver	R&S	ESR3	MRTSUE06612	1 year	2024-05-23	SIP-SR2
Thermohygrometer	testo	608-H1	MRTSUE06621	1 year	2023-11-02	SIP-SR2
Thermohygrometer	testo	608-H1	MRTSUE06621	1 year	2024-11-03	SIP-SR2
Shielding Room	MIX-BEP	SIP-SR2	MRTSUE06949	5 years	2024-10-23	SIP-SR2

Note 1: Standard gain horns need not be periodically calibrated. Antenna appearance and connector were checked and no damage.

Software	Version	Function
EMI V3	V 3.0.0	EMI Test Software
Controller_MF 7802BS	1.02	RE Antenna & turntable
MotorContor	V 2	mmw

6. Decision Rules and Measurement Uncertainty

6.1. Decision Rules

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4: 2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

6.2. Measurement Uncertainty

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k = 2.

AC Conducted Emission Measurement
Measurement Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 9kHz~150kHz: 3.58dB 150kHz~30MHz: 3.20dB
Radiated Disturbance
Measurement Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): Coaxial: 9kHz~30MHz: 2.59dB Coplanar: 9kHz~30MHz: 2.60dB Horizontal: 30MHz~200MHz: 3.85dB 200MHz~1GHz: 4.36dB 1GHz~40GHz: 4.98dB 40GHz~50GHz: 3.96dB 50GHz~75GHz: 4.01dB 75GHz~110GHz: 3.99dB 110GHz~140GHz: 4.11dB 140GHz~200GHz: 4.20dB Vertical: 30MHz~200MHz: 4.06dB 200MHz~1GHz: 5.28dB 1GHz~40GHz: 4.91dB 40GHz~50GHz: 3.86dB 50GHz~75GHz: 3.89dB 75GHz~110GHz: 3.87dB 110GHz~140GHz: 4.13dB 140GHz~200GHz: 4.24dB

7. Test Result

7.1. Summary

FCC Section(s)	Test Description	Test Condition	Verdict
15.215(c)	Emission Bandwidth	Radiated	Pass
15.255(c)(1)(i) & 15.255(e)(2)	Peak EIRP & Output Power		Pass
15.255(d)	Transmitter Spurious Emissions		Pass
15.255(f)	Frequency stability		Pass
15.207	AC Conducted Emissions 150kHz - 30MHz	Line Conducted	Pass

Notes:

1. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case data is shown in the report.
2. For “Emission Bandwidth” and “Frequency stability” test item, only the high rate mode was performed in the report due to the power of high rate is higher than the power of low rate.

7.2. Emission Bandwidth

7.2.1. Test Limit

Within 57~71GHz

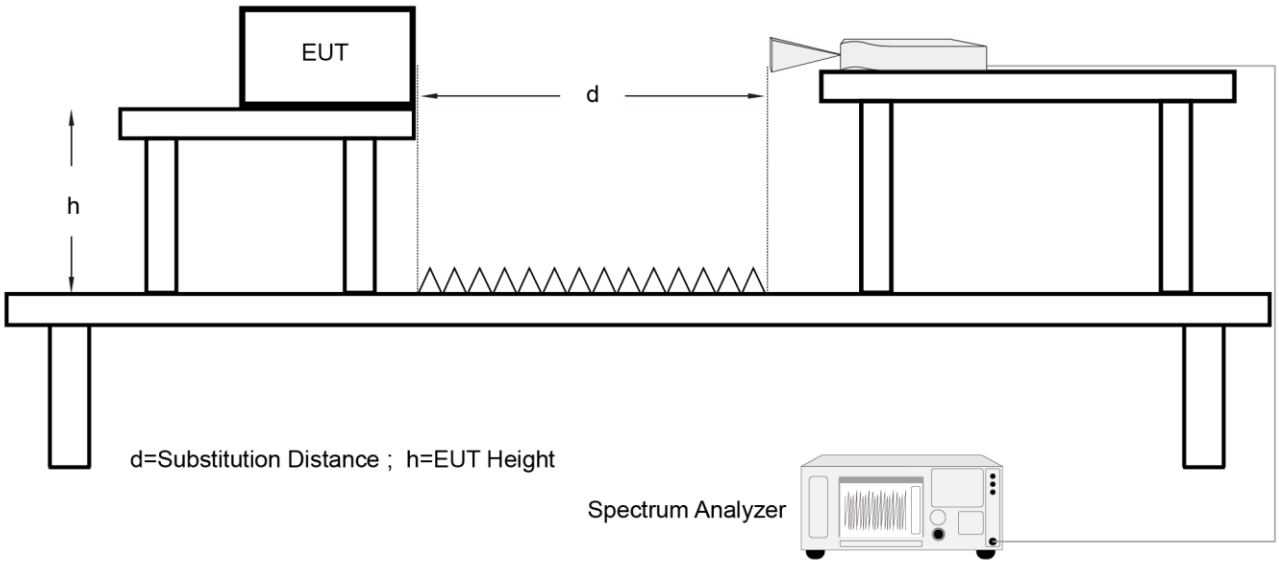
7.2.2. Test Procedure used

ANSI C63.10-2013 Section 9.3

7.2.3. Test Setting

1. Set the spectrum span range to overlap the nominal center frequency
2. Set RBW = 1% ~ 5% of the OBW
3. VBW ≥ 3 × RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. Allow the trace to stabilize and marker the highest level
8. Use Occupied BW function to determine two frequencies, one at the lowest frequency and the other at the highest frequency

7.2.4. Test Setup



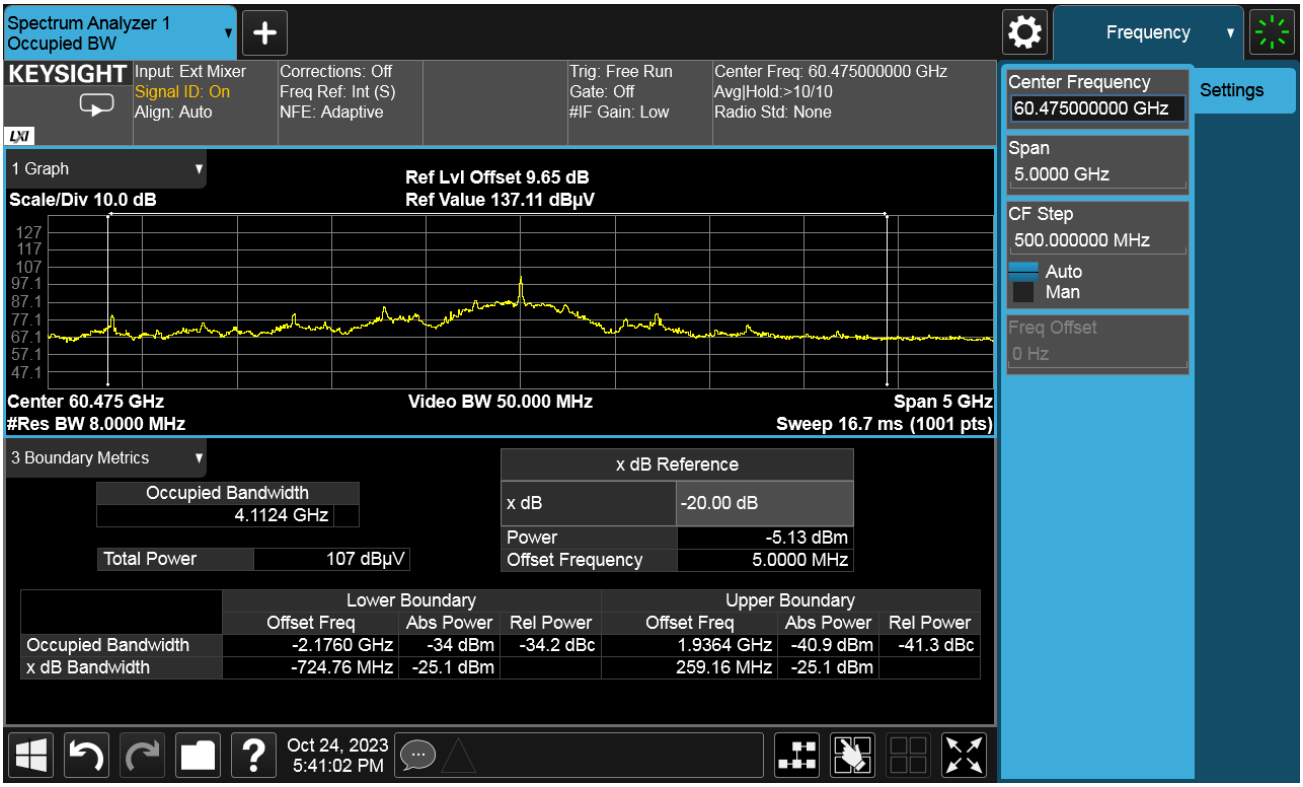
7.2.5. Test Result

Test Site	SIP-TR1	Test Engineer	Chase Zhu
Test Date	2023-10-24 ~ 2023-10-28	Test Mode	Mode 1

Frequency (GHz)	Modulation Type	20dB Bandwidth (MHz)	F_H (MHz)	F_L (MHz)	Limit (MHz)	Result
60 - 64	2ASK	983.92	60734.16	59750.24	57000 ~ 71000	Pass

Frequency (GHz)	Modulation Type	6dB Bandwidth (MHz)	F_H (MHz)	F_L (MHz)	Limit (MHz)	Result
60 - 64	2ASK	15.8969	60483.6891	60467.7922	57000 ~ 71000	Pass

20dB Bandwidth



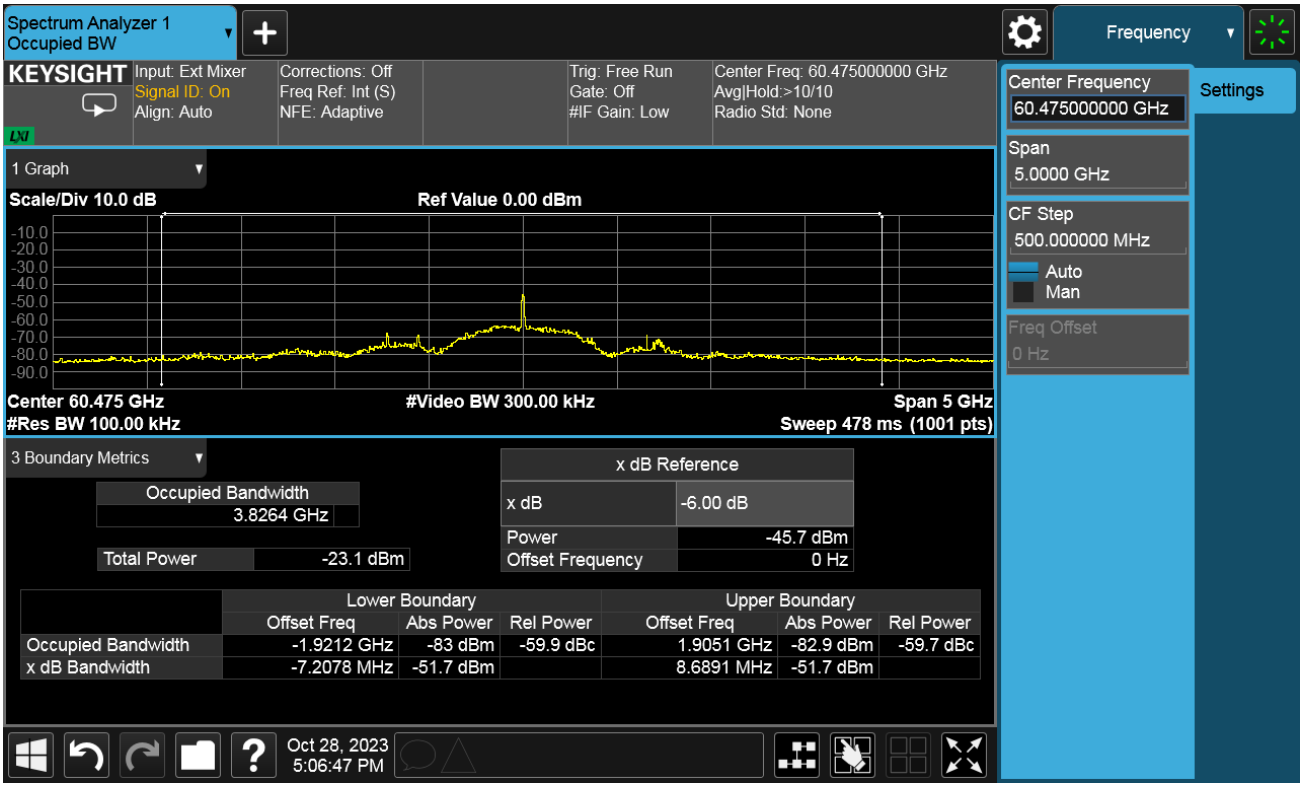
Note:

1. F_L = Center Frequency (MHz) + Lower Boundary Offset Frequency (MHz)

   F_H = Center Frequency (MHz) + Upper Boundary Offset Frequency (MHz)

2. 20dB Bandwidth (MHz) = F_H - F_L

6dB Bandwidth



Note:

1. F_L = Center Frequency (MHz) + Lower Boundary Offset Frequency (MHz)

   F_H = Center Frequency (MHz) + Upper Boundary Offset Frequency (MHz)

2. 6dB Bandwidth (MHz) = F_H - F_L

7.3. Peak EIRP & Output Power

7.3.1. Test Limit

According to FCC §15.255 (c)(1)(i), the average power of any emission shall not exceed 40 dBm and the peak power of any emission shall not exceed 43 dBm

According to FCC §15.255 (e)(2), Transmitters with an emission bandwidth of less than 100 MHz must limit their peak transmitter conducted output power to the product of 500 mW times their emission bandwidth divided by 100 MHz.

7.3.2. Test Procedure used

ANSI C63.10-2013 Section 9.11 & 9.7

Note: Far-field boundary calculation as below.

According to ANSI C63.10-2013, Clause 9, All measurements shall be made in the far-field of the measurement antenna. The far-field boundary for mm-wave antennas is $2D^2/\lambda$.

- For spurious and harmonic emissions testing, D is the largest antenna dimension of the measurement antenna in m;

  For fundamental or out-of-band emissions, D is the largest antenna dimension of the EUT antenna or measurement antenna, whichever is largest.
- λ is the wavelength in m.

Far-field boundary calculation			
Frequency Range (GHz)	λ (m)	D (m)	$R_{(Far\ Field)}$ (m)
24.00 ~ 24.25	0.012	0.096	1.536
40.00 ~ 50.00	0.006	0.046	0.705
50.00 ~ 75.00	0.004	0.036	0.648
75.00 ~ 110.00	0.0027	0.026	0.501
110.00 ~ 140.00	0.0021	0.020	0.381
140.00 ~ 220.00	0.0014	0.014	0.280
220.00 ~ 231.00	0.0013	0.0055	0.047

For 24.00 ~ 24.25GHz, Our measurement is performed at a minimum distance of 3.0m > $R_{(Far\ Field)}$.

For 40.00 ~ 231.00GHz, Our measurement is performed at a minimum distance of 1.0m > $R_{(Far\ Field)}$.

7.3.3.Test Setting

For EIRP measurement

1. Connect the test antenna for the fundamental frequency band to the mm-wave RF detector. Place the test horn in the main beam of the EUT at 0.3m. Connect the video output of the detector to the 50Ω input of a DSO. Set the sampling rate of the DSO to at least twice the cutoff frequency of any LPF used or to at least twice the signal bandwidth without a LPF. Adjust the memory depth, the triggering, and the sweep speed to obtain a display that is representative of the signal considering the type of modulation.
2. Record the average and peak voltages from the DSO.
3. Replace the EUT with mm-wave source to the RF input port of the instrumentation system. The mm-wave source shall be unmodulated.
4. Adjust the frequency of the mm-wave source to the center of the frequency range occupied by the transmitter. Adjust the amplitude of the mm-wave source such that the DSO indicates a voltage equal to the peak voltage recorded in step 2.
5. Without changing any settings, replace the DSO with the mm-wave power meter. Measure and note the power.
6. Repeat step 4 and step 5 for the average voltage recorded in step 2.

Calculate the peak conducted output power from the peak EIRP using below equation:

$$P_{cond} = EIRP_{Linear} / G_{EUT}$$

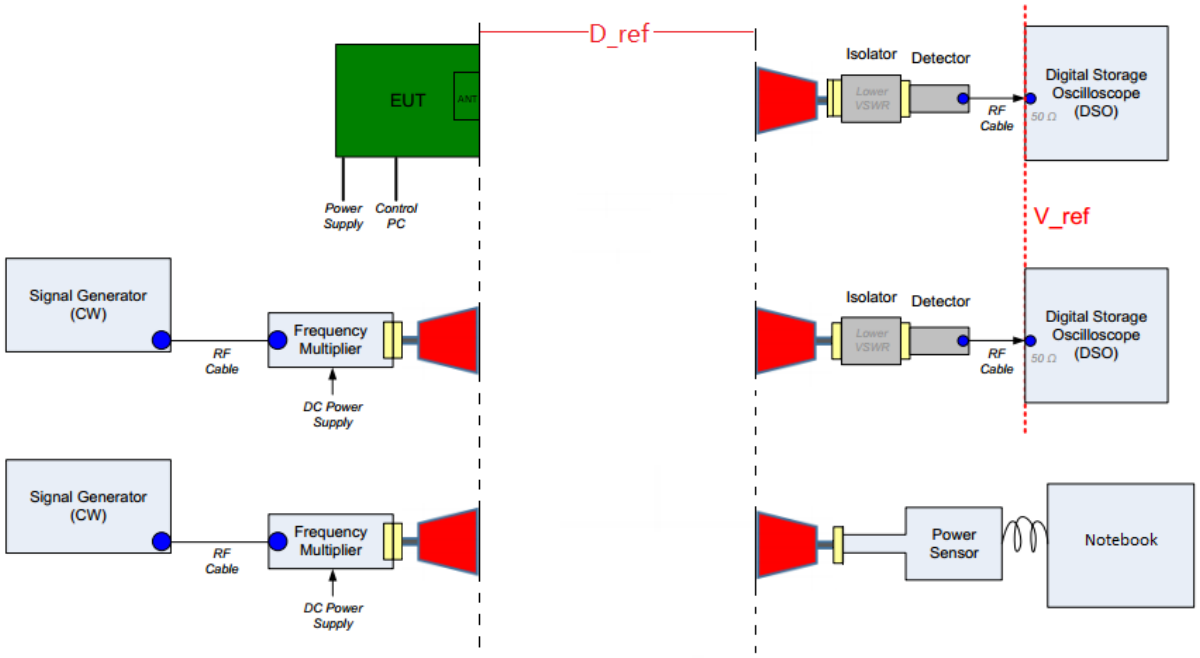
Where

P_{cond} is the conducted output power, in W

$EIRP_{Linear}$ is the equivalent isotropically radiated power, in W

G_{EUT} is numeric gain of the EUT radiating element (antenna)

7.3.4.Test Setup



7.3.5.Test Results

Test Site	SIP-TR2	Test Engineer	Chase Zhu
Test Date	2023-10-08	Test Mode	Mode 1

Frequency (GHz)	Peak EIRP (dBm)	Peak EIRP Limit (dBm)	Average EIRP (dBm)	Average EIRP Limit (dBm)	Result
60-64	1.6	43	1.2	40	Pass

Frequency (GHz)	Peak EIRP (dBm)	Antenna Gain (dBi)	Peak Output Power (dBm)	Peak Output Power (mw)	Peak Conducted Power Limit (mw)	Result
60-64	1.6	4	-2.4	0.575	79.4845	Pass

Note: Peak Output Power (dBm) = Peak EIRP (dBm) - Antenna Gain (dBi)

Peak Output Power(mw) = $10^{\wedge(\text{Peak Output Power(dBm)} / 10)}$

Peak Conducted Power Limit (mw) = 500 (mW) / 100 (MHz) * 6dB Bandwidth (MHz).

Test Site	SIP-TR2	Test Engineer	Chase Zhu
Test Date	2022-10-08	Test Mode	Mode 3

Frequency (GHz)	Peak EIRP (dBm)	Peak EIRP Limit (dBm)	Average EIRP (dBm)	Average EIRP Limit (dBm)	Result
60-64	-10.7	43	-14.7	40	Pass

Frequency (GHz)	Peak EIRP (dBm)	Antenna Gain (dBi)	Peak Output Power (dBm)	Peak Output Power (mw)	Peak Conducted Power Limit (mw)	Result
60-64	-10.7	4	-14.7	0.034	79.4845	Pass

Note: Peak Output Power (dBm) = Peak EIRP (dBm) - Antenna Gain (dBi)

Peak Output Power(mw) = 10^(Peak Output Power(dBm) / 10)

Peak Conducted Power Limit (mw) = 500 (mW) / 100 (MHz) * 6dB Bandwidth (MHz).

7.4. Transmitter Spurious Emissions

7.4.1. Test Limit

According to FCC §15.255 (d), limits on spurious emissions:

1. The power density of any emissions outside the 57-71 GHz band shall consist solely of spurious emissions.

2. Radiated emissions below 40 GHz shall not exceed the general limits in §15.209.

3. Between 40 GHz and 200 GHz, the level of these emissions shall not exceed 90pW/cm^2 at a distance of 3 meters.

4. The levels of the spurious emissions shall not exceed the level of the fundamental emission.

FCC Part 15.209 Limit		
Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (m)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 80	100**	3
80 ~ 216	150**	3
216 ~ 960	200**	3
Above 960	500	3
Note 1: The lower limit shall apply at the transition frequency. Note 2: Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system. Note 3: E field strength (dBuV/m) = 20 log E field strength (uV/m).		

7.4.2. Test Procedure used

ANSI C63.10-2013 Section 9.12~ 9.13 and Section 6.3 ~ 6.6

7.4.3.Test Procedure

Measurement of harmonic and spurious emissions above 40 GHz

1. Connect the test antenna covering the appropriate frequency range to a spectrum analyzer via an external mixer.
2. Set spectrum analyzer RBW = 1MHz, VBW = 3MHz, average detector.
3. Maximize all observed emissions. Note the maximum power indicated on the spectrum analyzer. Adjust this reading, if necessary, by the conversion loss of the external mixer used at the frequency under investigation and the external mixer IF cable loss.
4. Calculate the maximum field strength of the emission at the measurement distance
5. Calculate the power density at the distance specified by the limit from the field strength at the distance specified by the limit
6. Repeat the preceding sequence for every emission observed in the frequency band under investigation.

Measurement of harmonic and spurious emissions below 40 GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = as specified in Table 1
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Table 1 - RBW as a function of frequency

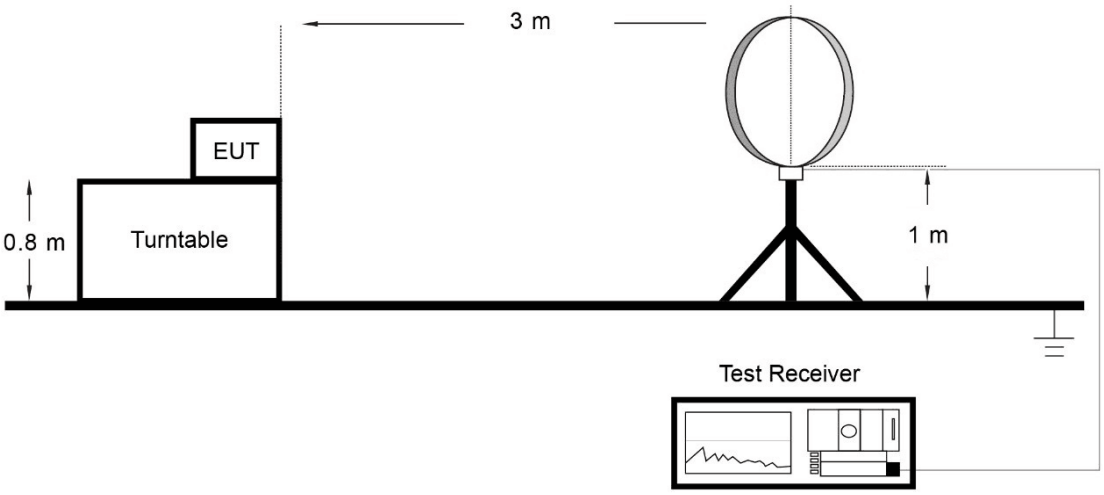
Frequency	RBW
9 ~ 150 kHz	200 ~ 300 Hz
0.15 ~ 30 MHz	9 ~ 10 kHz
30 ~ 1000 MHz	100 ~ 120 kHz
> 1000 MHz	1 MHz

Average Field Strength Measurements

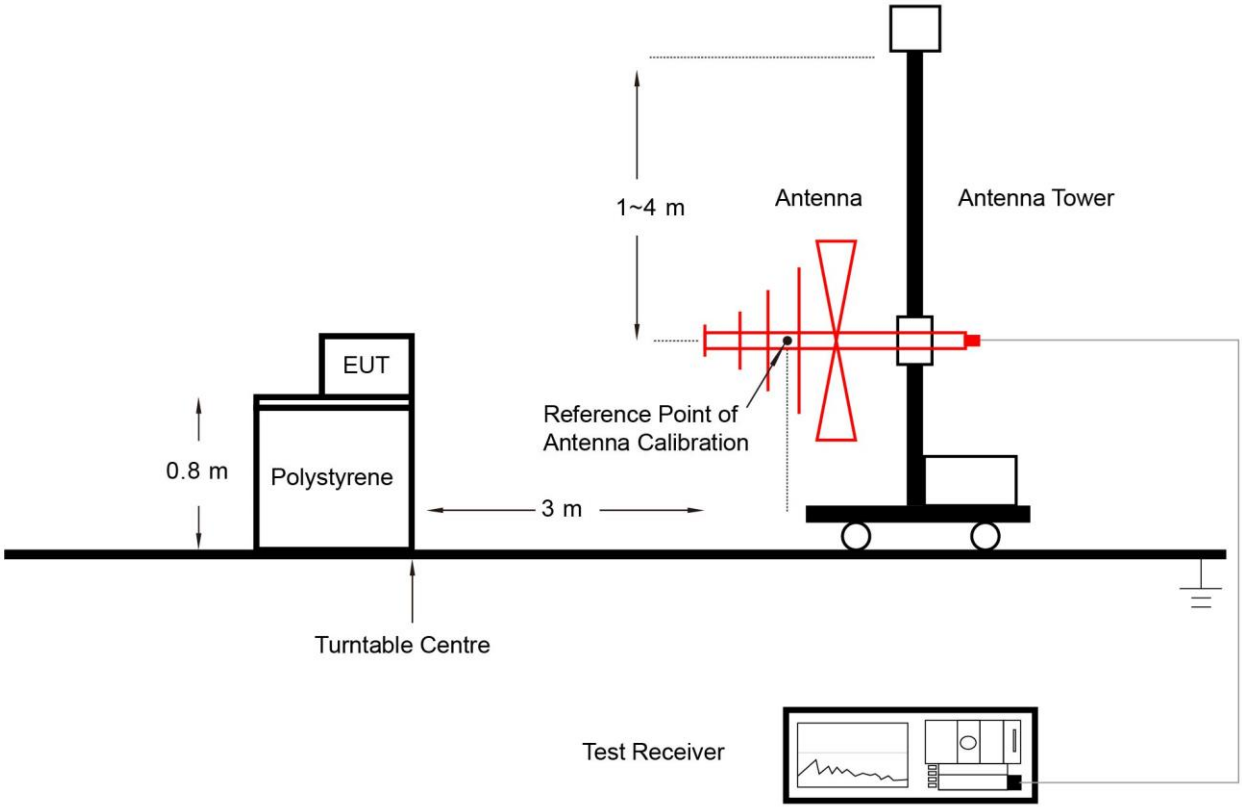
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3 x RBW
4. Detector = Average
5. Sweep time = auto
6. Trace mode = max hold
7. Allow max hold to run for at least 50 times (1/duty cycle) traces.

7.4.4.Test Setup

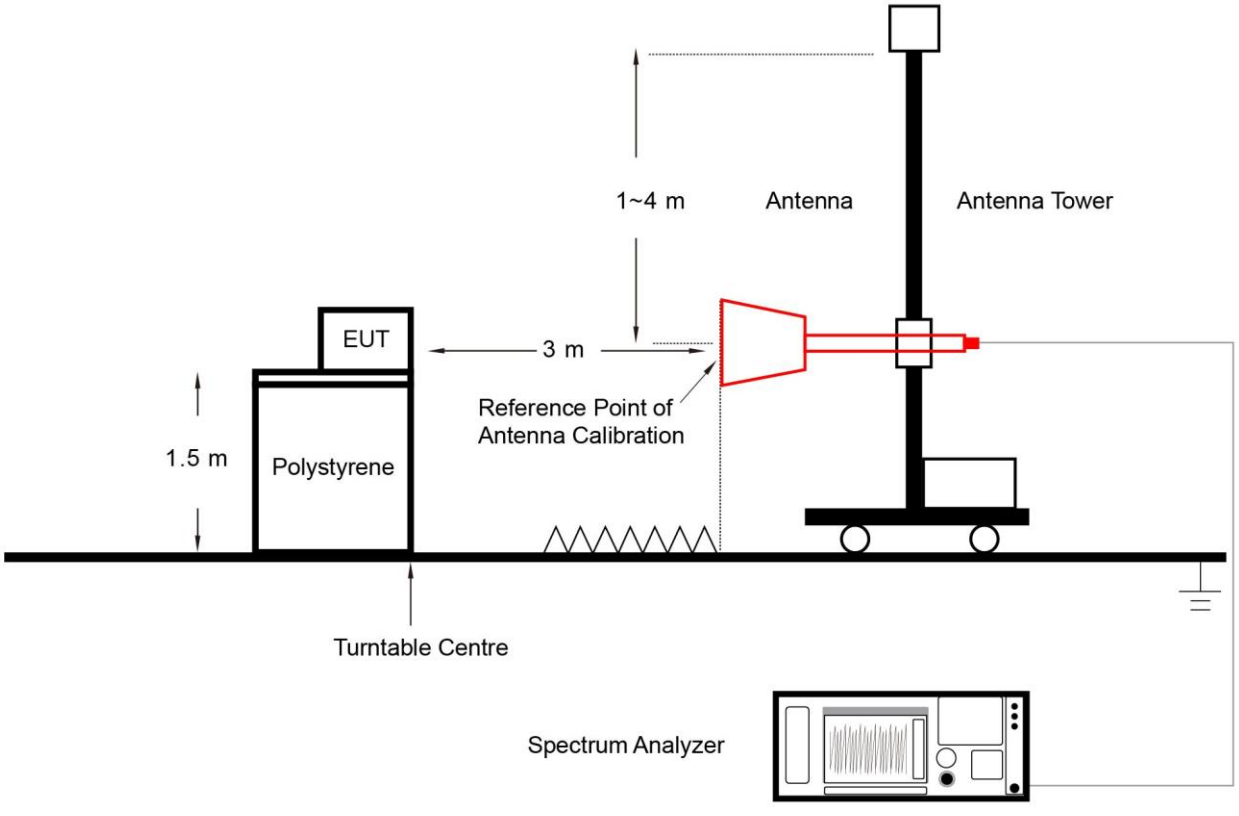
Below 30MHz Test Setup:



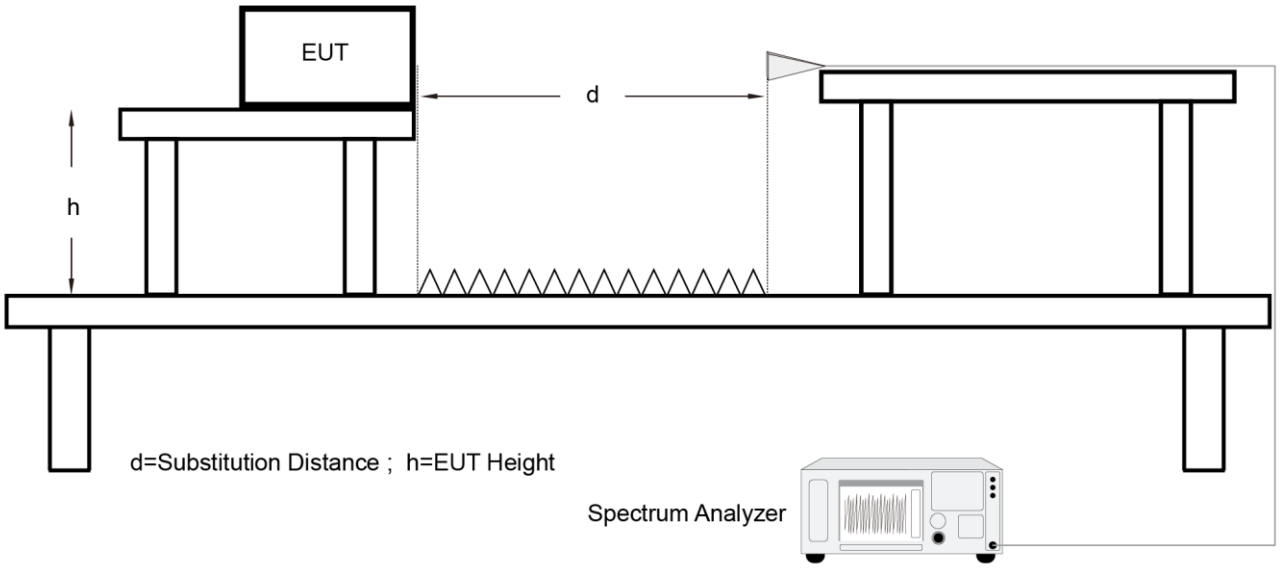
Below 1GHz Test Setup:



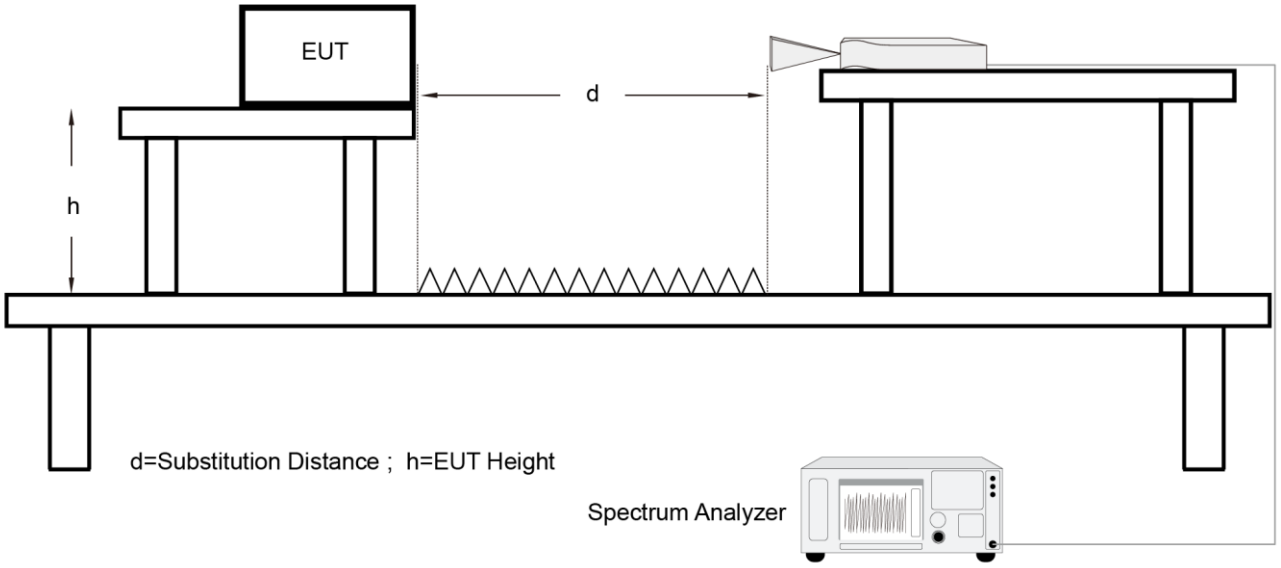
1GHz ~ 40GHz Test Setup:



40GHz ~ 50GHz Test Setup:



Above 50GHz Test Setup:



7.4.5.Test Result

Test Site	SIP-AC3	Test Engineer	Avrin Ding
Test Date	2023-09-28 ~ 2023-10-04	Test Mode	Mode 1

Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Below 1GHz							
60.1	5.1	17.1	22.2	40.0	-17.8	QP	Horizontal
82.9	9.8	12.8	22.6	40.0	-17.4	QP	Horizontal
154.6	12.7	18.2	30.9	43.5	-12.6	QP	Horizontal
423.3	11.4	21.5	32.9	46.0	-13.1	QP	Horizontal
634.8	1.0	26.4	27.4	46.0	-18.6	QP	Horizontal
919.5	-2.2	29.6	27.4	46.0	-18.6	QP	Horizontal
41.2	9.8	17.6	27.4	40.0	-12.6	QP	Vertical
67.8	13.7	15.9	29.6	40.0	-10.4	QP	Vertical
105.7	19.7	14.4	34.1	43.5	-9.4	QP	Vertical
185.2	16.7	16.1	32.8	43.5	-10.7	QP	Vertical
415.6	13.3	21.2	34.5	46.0	-11.5	QP	Vertical
720.2	4.7	27.1	31.8	46.0	-14.2	QP	Vertical

Notes:

1. Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

   Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m)

2. The amplitude of radiated emissions (frequency range from 9KHz to 30MHz) is that proximity to ambient noise, which also are attenuated more than 20 dB below the permissible value. Therefore, the data is not presented in the report.

Test Site	SIP-AC3	Test Engineer	Avrin Ding
Test Date	2023-09-28 ~ 2023-10-04	Test Mode	Mode 1

Frequency (MHz)	Reading Level (dBµV)	Factor (dB/m)	Measure Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Polarization
Between 1GHz and 40GHz							
3193.0	56.3	-10.4	45.9	74.0	-28.1	Peak	Horizontal
9950.5	48.2	-1.6	46.6	74.0	-27.4	Peak	Horizontal
17524.0	46.2	7.4	53.6	74.0	-20.4	Peak	Horizontal
17524.0	37.2	7.4	44.6	54.0	-9.4	Average	Horizontal
2394.0	58.8	-13.7	45.1	74.0	-28.9	Peak	Vertical
3193.0	60.8	-10.4	50.4	74.0	-23.6	Peak	Vertical
3193.0	49.7	-10.4	39.3	54.0	-14.7	Average	Vertical
17592.0	46.1	7.9	54.0	74.0	-20.0	Peak	Vertical
17592.0	37.0	7.9	44.9	54.0	-9.1	Average	Vertical
26800.0	56.9	-7.7	49.2	74.0	-24.8	Peak	Horizontal
32916.0	59.1	-8.2	50.9	74.0	-23.1	Peak	Horizontal
39285.0	54.0	1.0	55.0	74.0	-19.0	Peak	Horizontal
39285.0	42.4	1.0	43.4	54.0	-10.6	Average	Horizontal
26558.0	57.8	-7.8	50.0	74.0	-24.0	Peak	Vertical
32685.0	59.3	-8.6	50.7	74.0	-23.3	Peak	Vertical
39285.0	54.3	1.0	55.3	74.0	-18.7	Peak	Vertical
39285.0	42.5	1.0	43.5	54.0	-10.5	Average	Vertical

Notes:

1. Measure Level (dBµV/m) = Reading Level (dBµV) + Factor (dB/m)

   Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

2. Average measurement was not performed when the peak level lower than average limit

Test Site	SIP-AC3	Test Engineer	Avrin Ding
Test Date	2023-10-05 ~ 2023-10-07	Test Mode	Mode 1

Frequency (GHz)	Reading Level @ 1.0m (dBµV)	Factor (dB/m)	Measure Level @ 1.0m (dBµV/m)	Measure Level @ 3m (dBµV/m)	Power Density (pW/cm2)	Limit (pW/cm2)	Polarization
Above 40GHz							
49.1840	6.2610	45.7800	52.0410	42.4986	0.0047	90.0000	Horizontal
49.1495	6.5940	45.7800	52.3740	42.8316	0.0051	90.0000	Vertical
72.4960	23.6230	42.4100	66.0330	56.4906	0.1182	90.0000	Horizontal
72.4955	23.1940	42.4100	65.6040	56.0616	0.1071	90.0000	Vertical
82.3625	26.4530	44.2200	70.6730	61.1306	0.3441	90.0000	Horizontal
82.4740	26.4870	44.2200	70.7070	61.1646	0.3468	90.0000	Vertical
128.6660	13.3100	57.2900	70.6000	61.0576	0.3384	90.0000	Horizontal
137.2095	12.2100	57.2100	69.4200	59.8776	0.2579	90.0000	Vertical
198.9314	12.5900	60.1900	72.7800	63.2376	0.5590	90.0000	Horizontal
158.6228	13.1200	60.4500	73.5700	64.0276	0.6705	90.0000	Vertical

Notes:

1. Measure Level @ 1m = Reading Level @1m + Factor

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) + Mixer Conversion Loss (dB)

2. Measure Level @ 3m = Measure Level @ 1m + 20 * log(1m / 3m)

3. Power Density = (10^8 / 377) * {10^[(Measure Level @3m -120) / 20]}^2.

4. The test distance is 1m and the height is 0.8m.

Test Site	SIP-AC3	Test Engineer	Avrin Ding
Test Date	2023-09-28 ~ 2023-10-04	Test Mode	Mode 2

Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Below 1GHz							
60.1	5.8	17.1	22.9	40.0	-17.1	QP	Horizontal
79.0	9.8	13.6	23.4	40.0	-16.6	QP	Horizontal
116.8	11.6	15.5	27.1	43.5	-16.4	QP	Horizontal
464.1	8.7	22.5	31.2	46.0	-14.8	QP	Horizontal
615.9	4.3	26.0	30.3	46.0	-15.7	QP	Horizontal
874.9	-2.9	29.2	26.3	46.0	-19.7	QP	Horizontal
45.0	10.7	17.9	28.6	40.0	-11.4	QP	Vertical
75.6	12.7	14.3	27.0	40.0	-13.0	QP	Vertical
105.7	18.8	14.4	33.2	43.5	-10.3	QP	Vertical
166.3	14.5	17.8	32.3	43.5	-11.2	QP	Vertical
484.0	6.9	23.0	29.9	46.0	-16.1	QP	Vertical
720.2	4.2	27.1	31.3	46.0	-14.7	QP	Vertical

Notes:

1. Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

   Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m)

2. Quasi-Peak measurement was not performed when peak measure level was lower than the quasi-peak limit.

3. The amplitude of radiated emissions (frequency range from 9KHz to 30MHz) is that proximity to ambient noise, which also are attenuated more than 20 dB below the permissible value. Therefore, the data is not presented in the report.

Test Site	SIP-AC3	Test Engineer	Avrin Ding
Test Date	2023-09-28 ~ 2023-10-04	Test Mode	Mode 2

Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Between 1GHz and 40GHz							
7196.5	51.3	-4.8	46.5	74.0	-27.5	Peak	Horizontal
10205.5	49.9	-1.6	48.3	74.0	-25.7	Peak	Horizontal
17532.5	46.2	7.6	53.8	74.0	-20.2	Peak	Horizontal
17532.5	37.1	7.6	44.7	54.0	-9.3	Average	Horizontal
3193.0	59.9	-10.4	49.5	74.0	-24.5	Peak	Vertical
4791.0	56.5	-7.8	48.7	74.0	-25.3	Peak	Vertical
17549.5	46.0	7.7	53.7	74.0	-20.3	Peak	Vertical
17549.5	36.9	7.7	44.6	54.0	-9.4	Average	Vertical
27801.0	58.0	-8.1	49.9	74.0	-24.1	Peak	Horizontal
33147.0	59.2	-8.3	50.9	74.0	-23.1	Peak	Horizontal
39307.0	54.4	0.7	55.1	74.0	-18.9	Peak	Horizontal
39307.0	42.4	0.7	43.1	54.0	-10.9	Average	Horizontal
26910.0	57.1	-7.7	49.4	74.0	-24.6	Peak	Vertical
31178.0	58.4	-8.2	50.2	74.0	-23.8	Peak	Vertical
39626.0	53.7	1.4	55.1	74.0	-18.9	Peak	Vertical
39626.0	42.0	1.4	43.4	54.0	-10.6	Average	Vertical

Notes:

1. Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

   Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

2. Average measurement was not performed when the peak level lower than average limit

Test Site	SIP-AC3	Test Engineer	Avrin Ding
Test Date	2023-10-05 ~ 2023-10-07	Test Mode	Mode 2

Frequency (GHz)	Reading Level @ 1.0m (dBµV)	Factor (dB/m)	Measure Level @ 1.0m (dBµV/m)	Measure Level @ 3m (dBµV/m)	Power Density (pW/cm2)	Limit (pW/cm2)	Polarization
Above 40GHz							
49.1480	6.2290	45.7800	52.0090	42.4666	0.0047	90.0000	Horizontal
49.1610	6.1150	45.7800	51.8950	42.3526	0.0046	90.0000	Vertical
72.6380	24.1130	42.4100	66.5230	56.9806	0.1323	90.0000	Horizontal
72.6380	17.3190	42.4100	59.7290	50.1866	0.0277	90.0000	Vertical
83.4245	26.5200	44.2200	70.7400	61.1976	0.3495	90.0000	Horizontal
83.3630	26.6160	44.2200	70.8360	61.2936	0.3573	90.0000	Vertical
121.2415	12.3500	57.1800	69.5300	59.9876	0.2645	90.0000	Horizontal
127.8865	12.1500	57.6300	69.7800	60.2376	0.2802	90.0000	Vertical
199.7420	12.2700	60.4300	72.7000	63.1576	0.5488	90.0000	Horizontal
148.4612	12.3900	60.1100	72.5000	62.9576	0.5241	90.0000	Vertical

Notes:

1. Measure Level @ 1m = Reading Level @1m + Factor

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) + Mixer Conversion Loss (dB)

2. Measure Level @ 3m = Measure Level @ 1m + 20 * log(1m / 3m)

3. Power Density = (10^8 / 377) * {10^[(Measure Level @3m -120) / 20]}^2.

4. The test distance is 1m and the height is 0.8m.

Test Site	SIP-AC3	Test Engineer	Avrin Ding
Test Date	2023-09-28 ~ 2023-10-04	Test Mode	Mode 3

Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Below 1GHz							
47.9	1.3	17.9	19.2	40.0	-20.8	QP	Horizontal
83.8	7.3	12.7	20.0	40.0	-20.0	QP	Horizontal
166.3	11.3	17.8	29.1	43.5	-14.4	QP	Horizontal
252.1	10.8	16.9	27.7	46.0	-18.3	QP	Horizontal
510.2	11.6	23.0	34.6	46.0	-11.4	QP	Horizontal
869.1	-3.4	29.1	25.7	46.0	-20.3	QP	Horizontal
35.8	8.7	17.1	25.8	40.0	-14.2	QP	Vertical
47.9	13.3	17.9	31.2	40.0	-8.8	QP	Vertical
107.6	9.1	14.7	23.8	43.5	-19.7	QP	Vertical
166.3	6.5	17.8	24.3	43.5	-19.2	QP	Vertical
425.8	11.7	21.6	33.3	46.0	-12.7	QP	Vertical
766.2	-2.2	28.5	26.3	46.0	-19.7	QP	Vertical

Notes:

1. Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

   Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m)

2. Quasi-Peak measurement was not performed when peak measure level was lower than the quasi-peak limit.

3. The amplitude of radiated emissions (frequency range from 9KHz to 30MHz) is that proximity to ambient noise, which also are attenuated more than 20 dB below the permissible value. Therefore, the data is not presented in the report.

Test Site	SIP-AC3	Test Engineer	Avrin Ding
Test Date	2023-09-28 ~ 2023-10-04	Test Mode	Mode 3

Frequency (MHz)	Reading Level (dBµV)	Factor (dB/m)	Measure Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Polarization
Between 1GHz and 40GHz							
8267.5	49.9	-3.3	46.6	74.0	-27.4	Peak	Horizontal
12823.5	49.5	-0.3	49.2	74.0	-24.8	Peak	Horizontal
17456.0	46.7	7.3	54.0	74.0	-20.0	Peak	Horizontal
17456.0	36.9	7.3	44.2	54.0	-9.8	Average	Horizontal
5598.5	53.6	-7.2	46.4	74.0	-27.6	Peak	Vertical
7987.0	53.1	-3.7	49.4	74.0	-24.6	Peak	Vertical
17821.5	46.2	8.0	54.2	74.0	-19.8	Peak	Vertical
17821.5	36.5	8.0	44.5	54.0	-9.5	Average	Vertical
28912.0	56.6	-9.4	47.2	74.0	-26.8	Peak	Horizontal
35226.0	56.3	-6.3	50.0	74.0	-24.0	Peak	Horizontal
39736.0	52.9	-0.5	52.4	74.0	-21.6	Peak	Horizontal
39736.0	41.9	-0.5	41.4	54.0	-12.6	Average	Horizontal
27185.0	55.4	-7.6	47.8	74.0	-26.2	Peak	Vertical
34280.0	58.3	-7.9	50.4	74.0	-23.6	Peak	Vertical
39263.0	53.1	-1.6	51.5	74.0	-22.5	Peak	Vertical
39263.0	42.4	-1.6	40.8	54.0	-13.2	Average	Vertical

Notes:

1. Measure Level (dBµV/m) = Reading Level (dBµV) + Factor (dB/m)

   Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

2. Average measurement was not performed when the peak level lower than average limit

Test Site	SIP-AC3	Test Engineer	Avrin Ding
Test Date	2023-10-05 ~ 2023-10-07	Test Mode	Mode 3

Frequency (GHz)	Reading Level @ 1.0m (dBµV)	Factor (dB/m)	Measure Level @ 1.0m (dBµV/m)	Measure Level @ 3m (dBµV/m)	Power Density (pW/cm2)	Limit (pW/cm2)	Polarization
Above 40GHz							
49.1705	7.1650	45.7800	52.9450	43.4026	0.0058	90.0000	Horizontal
49.1110	6.0970	45.7800	51.8770	42.3346	0.0045	90.0000	Vertical
73.3095	21.9480	42.4100	64.3580	54.8156	0.0804	90.0000	Horizontal
72.5895	21.2470	42.4100	63.6570	54.1146	0.0684	90.0000	Vertical
83.3900	26.3960	44.2200	70.6160	61.0736	0.3396	90.0000	Horizontal
83.2615	26.4260	44.2200	70.6460	61.1036	0.3420	90.0000	Vertical
129.1700	12.2500	57.3300	69.5800	60.0376	0.2676	90.0000	Horizontal
120.4900	11.6100	57.3300	68.9400	59.3976	0.2309	90.0000	Vertical
163.1108	12.6900	60.3400	73.0300	63.4876	0.5921	90.0000	Horizontal
190.5830	12.8700	61.0100	73.8800	64.3376	0.7201	90.0000	Vertical

Notes:

1. Measure Level @ 1m = Reading Level @1m + Factor

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) + Mixer Conversion Loss (dB)

2. Measure Level @ 3m = Measure Level @ 1m + 20 * log(1m / 3m)

3. Power Density = (10^8 / 377) * {10^[(Measure Level @3m -120) / 20]}^2.

4. The test distance is 1m and the height is 0.8m.

Test Site	SIP-AC3	Test Engineer	Avrin Ding
Test Date	2023-09-28 ~ 2023-10-04	Test Mode	Mode 4

Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Below 1GHz							
59.6	11.6	17.2	28.8	40.0	-11.2	QP	Horizontal
71.7	10.5	15.1	25.6	40.0	-14.4	QP	Horizontal
107.6	5.1	14.7	19.8	43.5	-23.7	QP	Horizontal
252.1	12.4	16.9	29.3	46.0	-16.7	QP	Horizontal
498.0	7.6	23.1	30.7	46.0	-15.3	QP	Horizontal
895.7	-3.6	29.7	26.1	46.0	-19.9	QP	Horizontal
35.8	11.3	17.1	28.4	40.0	-11.6	QP	Vertical
71.7	11.3	15.1	26.4	40.0	-13.6	QP	Vertical
107.1	9.9	14.7	24.6	43.5	-18.9	QP	Vertical
251.6	6.1	16.9	23.0	46.0	-23.0	QP	Vertical
498.0	14.8	23.1	37.9	46.0	-8.1	QP	Vertical
678.0	1.7	26.1	27.8	46.0	-18.2	QP	Vertical

Notes:

1. Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

   Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m)

2. Quasi-Peak measurement was not performed when peak measure level was lower than the quasi-peak limit.

3. The amplitude of radiated emissions (frequency range from 9KHz to 30MHz) is that proximity to ambient noise, which also are attenuated more than 20 dB below the permissible value. Therefore, the data is not presented in the report.

Test Site	SIP-AC3	Test Engineer	Avrin Ding
Test Date	2023-09-28 ~ 2023-10-04	Test Mode	Mode 4

Frequency (MHz)	Reading Level (dBµV)	Factor (dB/m)	Measure Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Polarization
Between 1GHz and 40GHz							
8004.0	50.6	-3.9	46.7	74.0	-27.3	Peak	Horizontal
13282.5	50.0	0.2	50.2	74.0	-23.8	Peak	Horizontal
17711.0	46.7	7.5	54.2	74.0	-19.8	Peak	Horizontal
17711.0	36.5	7.5	44.0	54.0	-10.0	Average	Horizontal
3193.0	59.3	-10.4	48.9	74.0	-25.1	Peak	Vertical
7978.5	52.5	-3.9	48.6	74.0	-25.4	Peak	Vertical
17660.0	46.6	7.3	53.9	74.0	-20.1	Peak	Vertical
17660.0	36.7	7.3	44.0	54.0	-10.0	Average	Vertical
26602.0	55.1	-7.4	47.7	74.0	-26.3	Peak	Horizontal
34115.0	58.1	-8.3	49.8	74.0	-24.2	Peak	Horizontal
39516.0	53.2	-1.0	52.2	74.0	-21.8	Peak	Horizontal
39516.0	41.4	-1.0	40.4	54.0	-13.6	Average	Horizontal
28043.0	55.6	-7.6	48.0	74.0	-26.0	Peak	Vertical
35314.0	58.5	-6.5	52.0	74.0	-22.0	Peak	Vertical
35314.0	45.0	-6.5	38.5	54.0	-15.5	Average	Vertical
39692.0	52.8	-0.5	52.3	74.0	-21.7	Peak	Vertical
39692.0	41.6	-0.5	41.1	54.0	-12.9	Average	Vertical

Notes:

1. Measure Level (dBµV/m) = Reading Level (dBµV) + Factor (dB/m)

   Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

2. Average measurement was not performed when the peak level lower than average limit

Test Site	SIP-AC3	Test Engineer	Avrin Ding
Test Date	2023-10-05 ~ 2023-10-07	Test Mode	Mode 4

Frequency (GHz)	Reading Level @ 1.0m (dBµV)	Factor (dB/m)	Measure Level @ 1.0m (dBµV/m)	Measure Level @ 3m (dBµV/m)	Power Density (pW/cm2)	Limit (pW/cm2)	Polarization
Above 40GHz							
49.1225	5.9600	45.7800	51.7400	42.1976	0.0044	90.0000	Horizontal
49.1200	6.0950	45.7800	51.8750	42.3326	0.0045	90.0000	Vertical
73.2585	18.0130	42.4100	60.4230	50.8806	0.0325	90.0000	Horizontal
73.2280	17.2940	42.4100	59.7040	50.1616	0.0275	90.0000	Vertical
82.3800	26.2570	44.2200	70.4770	60.9346	0.3289	90.0000	Horizontal
82.3660	26.4840	44.2200	70.7040	61.1616	0.3466	90.0000	Vertical
122.1555	11.5500	57.4500	69.0000	59.4576	0.2341	90.0000	Horizontal
134.3025	12.5900	57.4100	70.0000	60.4576	0.2947	90.0000	Vertical
166.9304	12.4900	60.2500	72.7400	63.1976	0.5539	90.0000	Horizontal
151.7210	12.5000	60.8400	73.3400	63.7976	0.6359	90.0000	Vertical

Notes:

1. Measure Level @ 1m = Reading Level @1m + Factor

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) + Mixer Conversion Loss (dB)

2. Measure Level @ 3m = Measure Level @ 1m + 20 * log(1m / 3m)

3. Power Density = (10^8 / 377) * {10^[(Measure Level @3m -120) / 20]}^2.

4. The test distance is 1m and the height is 0.8m.

7.5. Frequency Stability

7.5.1. Test Limit

According to FCC §15.255 (f), fundamental emissions must be contained within the frequency bands 57 - 71GHz during all conditions of operation. Equipment is presumed to operate over the temperature range -20 to +50 degrees Celsius with an input voltage variation of 85% to 115% of rated input voltage, unless justification is presented to demonstrate otherwise.

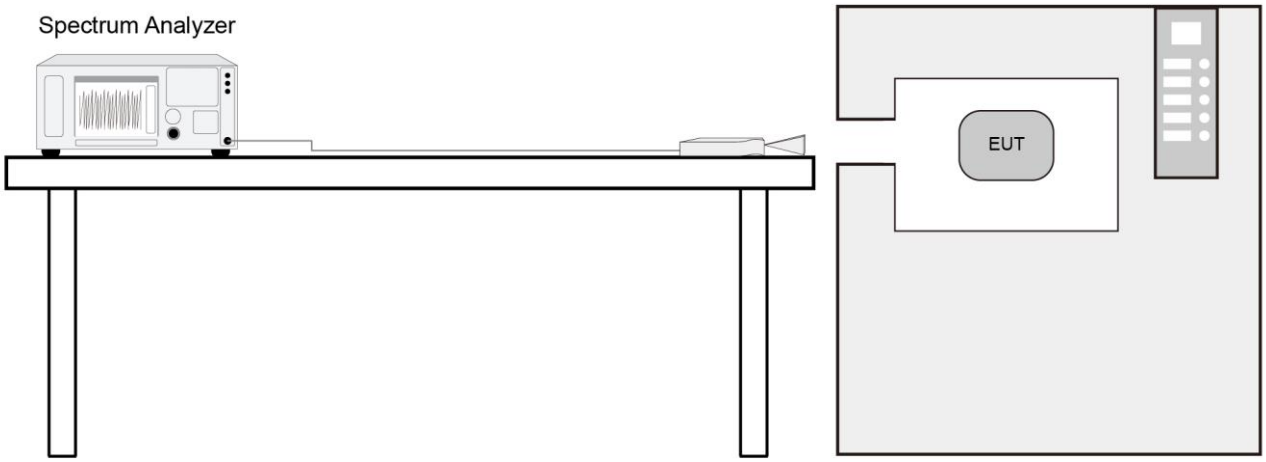
7.5.2. Test Procedure used

ANSI C63.10-2013 Section 9.14

7.5.3. Test Procedure

1. Arrange EUT and test equipment according to Section 6.5.4.
2. With the EUT at ambient temperature and voltage source set to the EUT nominal operating voltage (100%), record the spectrum mask of the EUT emission on the spectrum analyzer.
3. Vary EUT power supply between 85% and 115% of nominal and record the frequency excursion of the EUT emission mask.
4. Set the power supply to 100% nominal setting, and raise EUT operating temperature to 50 °C.
5. Record the frequency excursion of the EUT emission mask.
6. Repeat step 5 at each 10°C increment down to -20 °C.

7.5.4. Test Setup



7.5.5. Test Result

Test Site	SIP-TR1	Test Engineer	Chase Zhu
Test Mode	Modulated Mode	Test Date	2023-10-24

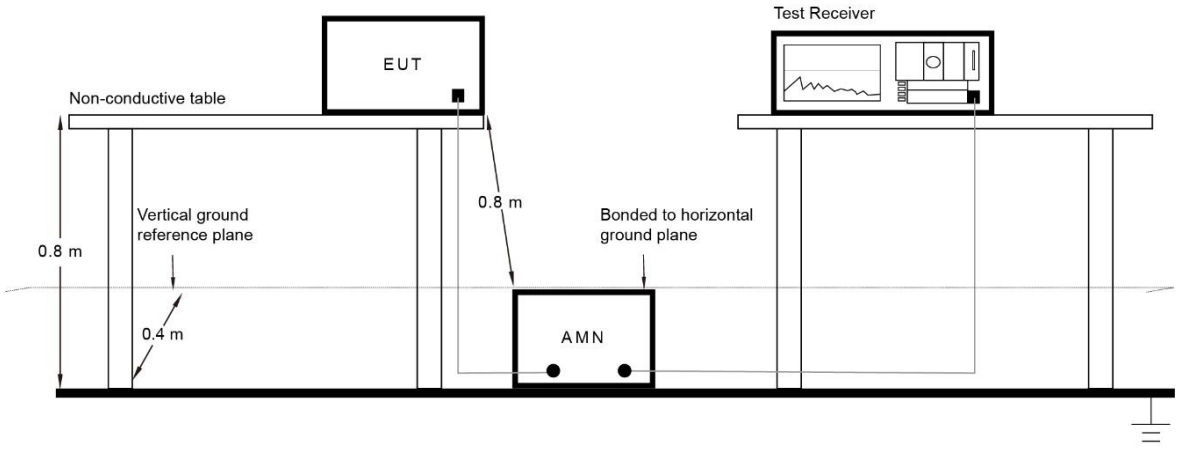
Voltage (%)	Power (V)	Temp (℃)	Low Frequency (MHz)	High Frequency (MHz)	Limit (GHz)	Result
100	5	- 20	59747.65	60729.73	57 ~ 71	Pass
		- 10	59757.64	60740.12	57 ~ 71	Pass
		0	59751.06	60761.15	57 ~ 71	Pass
		+ 10	59747.14	60733.32	57 ~ 71	Pass
		+ 20	59750.24	60734.16	57 ~ 71	Pass
		+ 30	59750.77	60761.87	57 ~ 71	Pass
		+ 40	59750.42	60773.54	57 ~ 71	Pass
		+ 50	59753.71	60738.06	57 ~ 71	Pass
115	5.75	+ 20	59749.35	60821.23	57 ~ 71	Pass
85	4.25	+ 20	59750.19	60745.94	57 ~ 71	Pass

7.6. AC Conducted Emissions Measurement

7.6.1. Test Limit

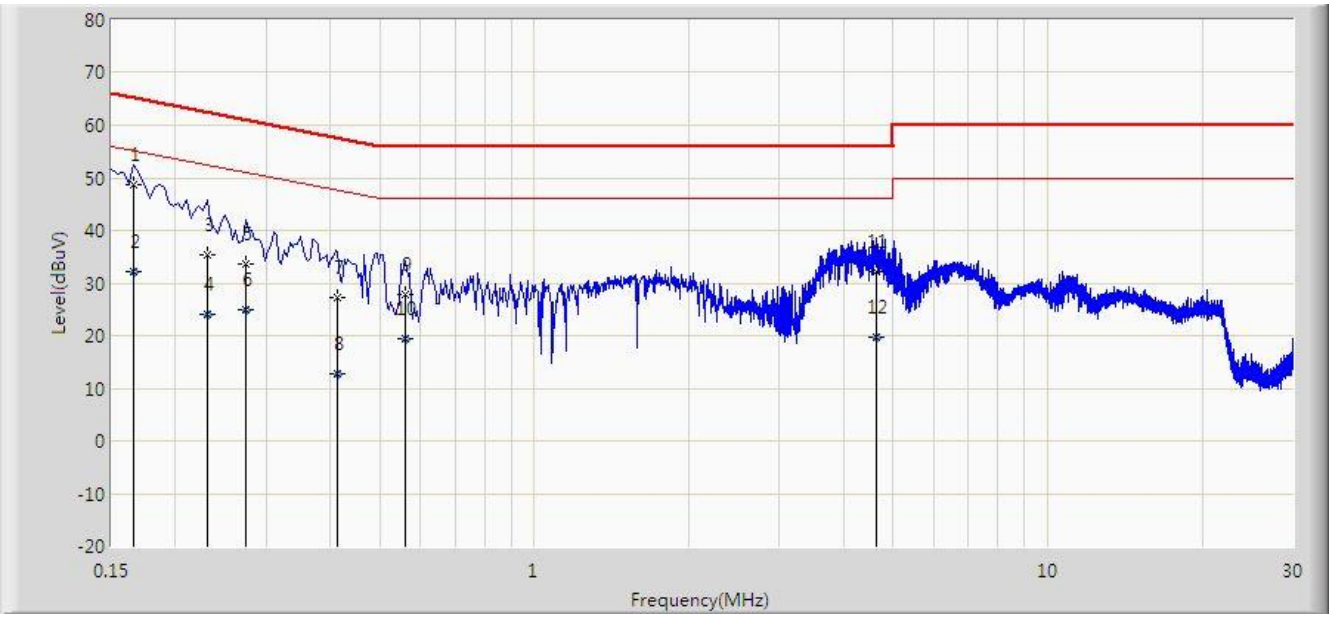
FCC 15.207 Limits		
Frequency (MHz)	QP (dBuV)	Average (dBuV)
0.15 ~ 0.50	66 ~ 56	56 ~ 46
0.50 ~ 5.0	56	46
5.0 ~ 30	60	50
Note 1: The lower limit shall apply at the transition frequencies. Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.		

7.6.2. Test Setup



7.6.3. Test Result

Site: SIP-SR2	Time: 2023-10-23 - 14:45
Limit: FCC_Part15.207_CE_AC Power	Engineer: Mark Long
Probe: SIP-SR2-ENV216_101684_C	Polarity: Line
EUT: USB2.0 contactless connectivity	Power: AC 120V/60Hz
Test Mode 1	



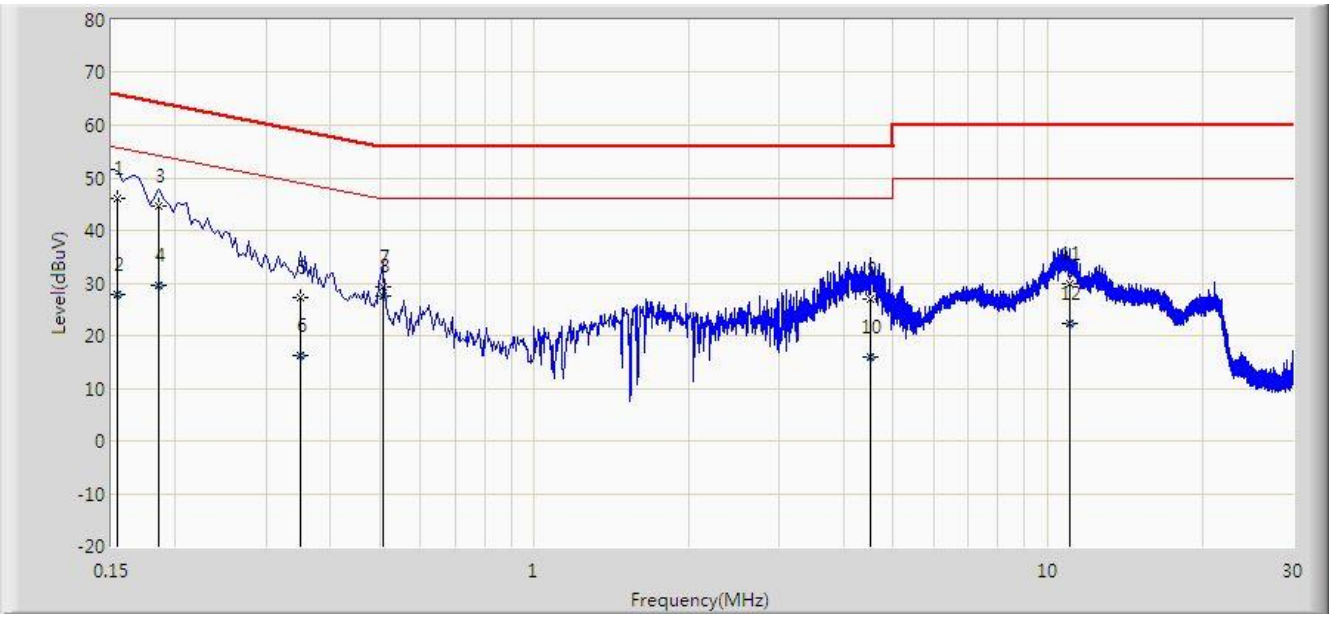
No	Mark	Frequency (MHz)	Measure Level (dBµV)	Reading Level (dBµV)	Margin (dB)	Limit (dBµV)	Factor (dB)	Type
1	*	0.166	48.618	38.664	-16.540	65.158	9.954	QP
2		0.166	32.254	22.300	-22.904	55.158	9.954	AV
3		0.230	35.390	25.438	-27.060	62.450	9.952	QP
4		0.230	24.057	14.105	-28.393	52.450	9.952	AV
5		0.274	33.739	23.950	-27.257	60.996	9.790	QP
6		0.274	24.804	15.015	-26.192	50.996	9.790	AV
7		0.414	27.140	17.410	-30.428	57.568	9.730	QP
8		0.414	12.866	3.136	-34.701	47.568	9.730	AV
9		0.562	27.967	18.230	-28.033	56.000	9.736	QP
10		0.562	19.444	9.708	-26.556	46.000	9.736	AV
11		4.642	32.075	22.219	-23.925	56.000	9.856	QP
12		4.642	19.674	9.818	-26.326	46.000	9.856	AV

Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBµV) = Reading Level (dBµV) + Factor (dB).

Note 3: Factor (dB) = Cable Loss (dB) + LISN Factor (dB).

Site: SIP-SR2	Time: 2023-10-23 - 14:51
Limit: FCC_Part15.207_CE_AC Power	Engineer: Mark Long
Probe: SIP-SR2-ENV216_101684_C	Polarity: Neutral
EUT: USB2.0 contactless connectivity	Power: AC 120V/60Hz
Test Mode 1	



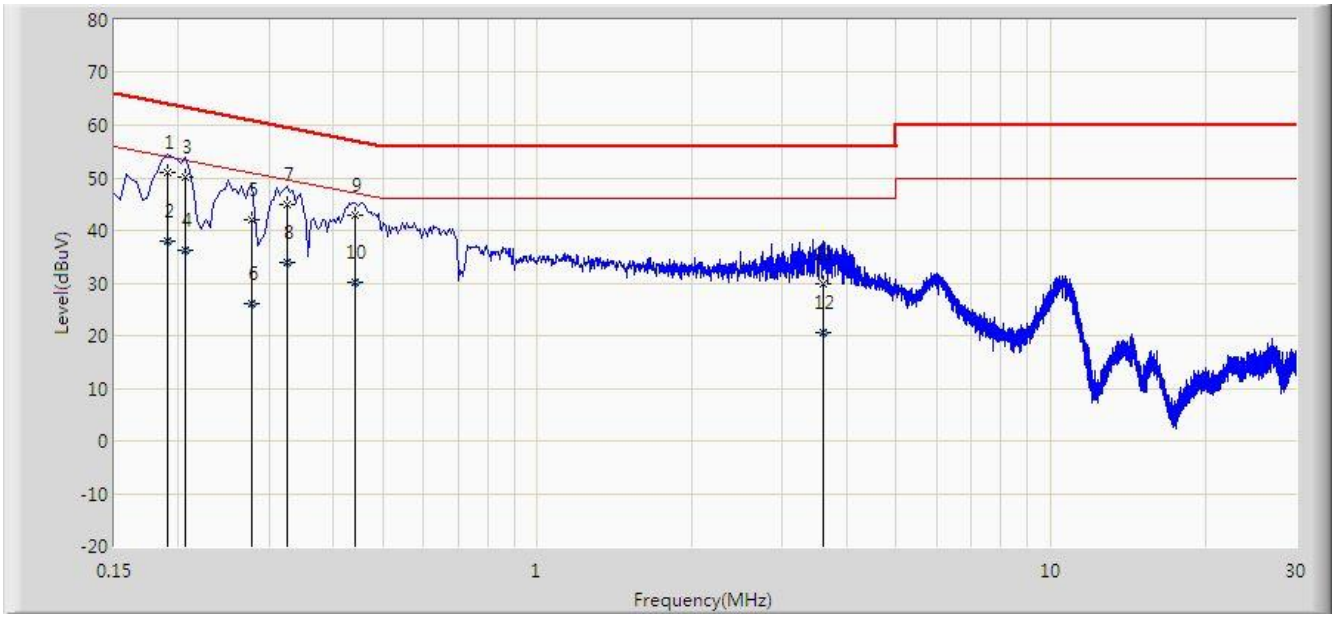
No	Mark	Frequency (MHz)	Measure Level (dBµV)	Reading Level (dBµV)	Margin (dB)	Limit (dBµV)	Factor (dB)	Type
1		0.154	46.198	36.557	-19.584	65.781	9.641	QP
2		0.154	27.879	18.237	-27.903	55.781	9.641	AV
3		0.186	44.661	35.013	-19.552	64.213	9.648	QP
4		0.186	29.705	20.057	-24.508	54.213	9.648	AV
5		0.350	27.245	17.542	-31.718	58.962	9.703	QP
6		0.350	16.277	6.574	-32.685	48.962	9.703	AV
7		0.506	29.328	19.618	-26.672	56.000	9.710	QP
8	*	0.506	27.571	17.861	-18.429	46.000	9.710	AV
9		4.506	27.033	17.208	-28.967	56.000	9.825	QP
10		4.506	15.856	6.031	-30.144	46.000	9.825	AV
11		11.050	29.778	19.691	-30.222	60.000	10.087	QP
12		11.050	22.342	12.255	-27.658	50.000	10.087	AV

Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBµV) = Reading Level (dBµV) + Factor (dB).

Note 3: Factor (dB) = Cable Loss (dB) + LISN Factor (dB).

Site: SIP-SR2	Time: 2023/12/08 - 16:55
Temperature: 19.2°C	Humidity: 42.9%
Limit: FCC_Part15.207_CE_AC Power	Engineer: Mark Long
Probe: SIP-SR2-ENV216_101684_C	Polarity: Neutral
EUT: USB2.0 contactless connectivity	Power: AC 120V/60Hz
Test Mode 2	



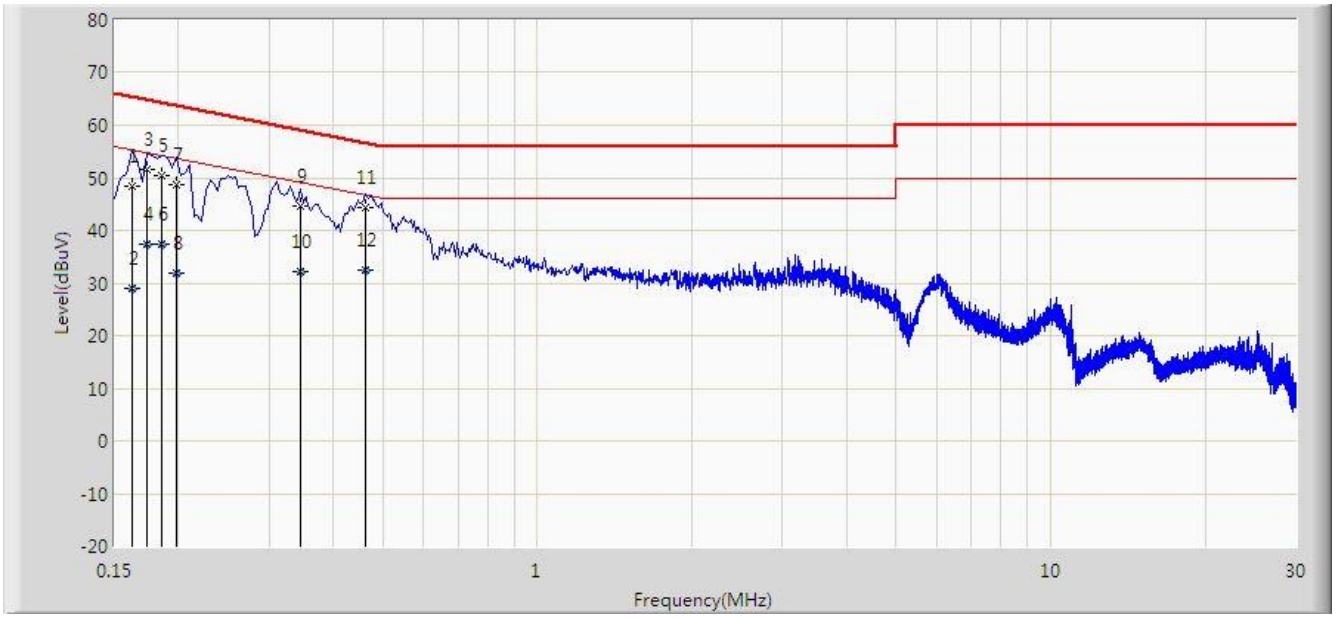
No	Mark	Frequency (MHz)	Measure Level (dBµV)	Reading Level (dBµV)	Margin (dB)	Limit (dBµV)	Factor (dB)	Type
1	*	0.190	50.905	41.251	-13.132	64.037	9.654	QP
2		0.190	38.057	28.403	-15.980	54.037	9.654	AV
3		0.206	50.109	40.436	-13.256	63.365	9.673	QP
4		0.206	36.375	26.702	-16.990	53.365	9.673	AV
5		0.278	42.076	32.383	-18.799	60.875	9.693	QP
6		0.278	26.213	16.520	-24.662	50.875	9.693	AV
7		0.326	44.850	35.141	-14.702	59.552	9.709	QP
8		0.326	33.836	24.127	-15.716	49.552	9.709	AV
9		0.442	42.835	33.125	-14.189	57.024	9.710	QP
10		0.442	30.176	20.466	-16.849	47.024	9.710	AV
11		3.594	29.900	20.074	-26.100	56.000	9.826	QP
12		3.594	20.506	10.680	-25.494	46.000	9.826	AV

Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBµV) = Reading Level (dBµV) + Factor (dB).

Note 3: Factor (dB) = Cable Loss (dB) + LISN Factor (dB).

Site: SIP-SR2	Time: 2023/12/08 - 16:59
Temperature: 19.2°C	Humidity: 42.9%
Limit: FCC_Part15.207_CE_AC Power	Engineer: Mark Long
Probe: SIP-SR2-ENV216_101684_C	Polarity: Line
EUT: USB2.0 contactless connectivity	Power: AC 120V/60Hz
Test Mode 2	



No	Mark	Frequency (MHz)	Measure Level (dBµV)	Reading Level (dBµV)	Margin (dB)	Limit (dBµV)	Factor (dB)	Type
1		0.162	48.337	38.400	-17.024	65.361	9.938	QP
2		0.162	28.939	19.002	-26.421	55.361	9.938	AV
3		0.174	51.708	41.721	-13.059	64.767	9.987	QP
4		0.174	37.446	27.459	-17.321	54.767	9.987	AV
5		0.186	50.514	40.469	-13.700	64.213	10.045	QP
6		0.186	37.527	27.482	-16.687	54.213	10.045	AV
7		0.198	48.578	38.529	-15.116	63.694	10.049	QP
8		0.198	31.885	21.835	-21.809	53.694	10.049	AV
9		0.346	44.653	34.917	-14.405	59.058	9.736	QP
10		0.346	32.172	22.435	-16.886	49.058	9.736	AV
11	*	0.462	44.388	34.658	-12.268	56.657	9.730	QP
12		0.462	32.531	22.801	-14.125	46.657	9.730	AV

Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBµV) = Reading Level (dBµV) + Factor (dB).

Note 3: Factor (dB) = Cable Loss (dB) + LISN Factor (dB).

Appendix A – Test Setup Photograph

Refer to “2309RSU048-UT” file.

Appendix B – EUT Photograph

Refer to “2309RSU048-UE” file.

The End